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EXAMINER

KOEHLER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3726

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Taka

Office Action Summary	Application No. 10/725,958	Applicant(s) WOODS ET AL.	
	Examiner Christopher M. Koehler	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05/04/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In paragraph [0034], line 8 of the specification the applicant denotes the collar as element 143.

Consider revising "collar 143" to --collar 140--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims **1-3, 5, 7, 9-12, 26-27, 29-32, 34-38, 40-44, 48-50, and 53** are rejected under 35 U.S.C. 102(b) as being anticipated by **Nordyke (US Patent No. 5,049,016)**.

4. Regarding **claim 1**, Nordyke teaches a method of fastening components with a swage fastener comprising:

- a. Inserting an elongated member (**32**) through a first (**36**) and second (**38**) hole, of respective first (**40**) and second (**42**) component, with a head (**44**) of the elongated member proximate to the first component (**figure 3**).

- b. Swaging a collar (**10b**) to a helical groove (**50**) of the elongated member, with the first and second components positioned between the head (**44**) and the collar (**10b**) and with the collar positioned between the second component and a removable portion (**54**) of the elongated member.

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- c. Removing the removable portion (54) of the elongated member (**col. 9, lines 63-67**).
5. Regarding **claim 2**, Nordyke teaches removing the removable portion after swaging the collar (**col. 9, lines 63-67**).
6. Regarding **claim 3**, Nordyke teaches that the diameter of the elongated member is less than the diameter of the first and second holes and therefore creates a clearance fit (**col.8, lines 45-57**).
7. Regarding **claim 5**, Nordyke teaches swaging a collar and removing a removable portion by engaging the removable portion with a first portion (60) of an installation tool (58) and engaging the collar with a second portion (68) of the installation tool and moving one portion axially relative to the other (**col. 9 lines 40-49**).
8. Regarding **claim 7**, Nordyke teaches that the elongated member is elongated along an axis and removing the removable portion of the elongated member includes applying a force to the removable portion generally aligned with the axis (**col. 9, lines 63-67**).
9. Regarding **claim 9**, Nordyke teaches inserting the elongated member without a tool with the elongated member having a clearance fit within the holes (**col. 8, lines 45-57**).
10. Regarding **claim 10**, Nordyke teaches inserting the elongated member with its head (44) bearing against the first component (40).
11. Regarding **claim 11**, Nordyke teaches swaging the collar (10b) to bear against the second component (42).

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12. Regarding **claim 12**, Nordyke teaches swaging the collar by applying an axial force and a radially inwardly directed force to the collar without applying torque to the collar (**col. 9, lines 40-67**).

13. Regarding **claim 26**, Nordyke teaches a fastening method of fastening a swage type fastener comprising:

- a. Inserting an elongated member (**32**) through a hole (**36**) in at least one component (**40**) with a head (**44**) of the elongated member proximate the at least one component.
- b. Swaging the collar (**10b**) to a helical groove (**50**) with at least one component positioned between the head (**44**) and the collar and with the collar between at least one component and the removable portion (**54**).
- c. Removing the removable portion (**54**) of the elongated member (**32**).

14. Regarding **claim 27**, Nordyke teaches removing the removable portion after swaging the collar (**col. 9, lines 63-67**).

15. Regarding **claim 29**, Nordyke teaches swaging a collar and removing a removable portion by engaging the removable portion with a first portion (**60**) of an installation tool (**58**) and engaging the collar with a second portion (**68**) of the installation tool and moving one portion axially relative to the other (**col. 9 lines 40-49**).

14. Regarding **claim 30**, Nordyke teaches that the elongated member is elongated along an axis and removing the removable portion of the elongated member includes applying a force to the removable portion generally aligned with the axis (**col. 9, lines 63-67**).

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15. Regarding **claim 31**, Nordyke teaches inserting the elongated member without a tool with the elongated member having a clearance fit within the holes (**col. 8, lines 45-57**).

16. Regarding **claim 32**, Nordyke teaches swaging the collar by applying an axial force and a radially inwardly directed force to the collar without applying torque to the collar (**col. 9, lines 40-67**).

16. Regarding **claim 34**, Nordyke teaches a fastener system for fastening swage type fasteners comprising:

- a. A collar (**10b**) having an aperture (**15 figure 1**).
- b. An elongated member (**32**) having a head portion (**44**) and a shaft portion (**46**) configured to be received in the aperture of the collar (**10b**), the shaft portion including a helical thread (**50**), a tool engagement portion (**54**) and a frangible portion (**52**) between the thread and the engagement portion. The frangible portion is configured to break under axial tension when a tool engages the tool engagement portion and swages the collar onto the helical thread.

17. Regarding **claim 35**, Nordyke teaches a tool (**58**) for the fastening system.

18. Regarding **claim 36**, Nordyke teaches a tool (**58**) having a first portion (**60**) positioned to engage the tool engagement portion (**54**) and a second portion (**68**) positioned to contact the collar (**10b**) and wherein one of the two portions is movable relative the other (**col. 9, lines 40-49**).

19. Regarding **claims 37 and 38**, Nordyke teaches an elongated member (**32**) with a generally circular cross-section and wherein the tool engagement portion (**54**) includes

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a plurality of ridges (56) extending circumferentially around the elongated member at a single axial location.

20. Regarding **claim 40**, Nordyke teaches a fastener system for fastening swage type fasteners comprising:

- a. A collar (10b) having an aperture (15 **figure 1**).
- b. An elongated member (32) having a head portion (44) and a shaft portion (46) configured to be received in the aperture of the collar (10b), the shaft portion including a helical thread (50), a plurality of axially spaced-apart circumferential ridges (56) and a frangible portion (52) between the thread and the circumferential ridges. The frangible portion is configured to break under axial tension high enough to allow the collar to be swaged onto the at least one helical thread (**col. 9, lines 40-67**).
- c. An installation tool having a first portion (60) positioned to engage the circumferential ridges (56), a second portion (68) positioned to engage the collar (10b), at least one of the portions being movable relative the other to swage the collar onto the helical thread and break the frangible portion (**col. 9, lines 40-67**).

21. Regarding **claim 41**, Nordyke teaches that the first portion (60) of the tool includes a collet assembly (62) and the second portion (68) includes an anvil housing (64) having an axially extending aperture (**col. 8, line 65-col. 9, line 5**).

22. Regarding **claim 42**, Nordyke teaches a fastener system for fastening swage type fasteners comprising:

- a. A first fastening means (10b) having an aperture (15 **figure 1**).

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b. A second fastening means (32) configured to be received in the aperture of the first fastening means (10b), the second fastening means including at least one helical thread (50), a tool engagement portion (54), and a frangible portion (52) between the thread and the tool engagement portion, the frangible portion being configured to break under axial tension when a tool engages the tool engagement portion and swages the first fastening means onto the helical thread.

23. Regarding **claim 43**, Nordyke teaches a tool (58) having a first portion (60) positioned to engage the tool engagement portion (54) and a second portion (68) positioned to contact the collar (10b) and wherein one of the two portions is movable relative the other (**col. 9, lines 40-49**).

24. Regarding **claim 44**, the intended use phrase "an aircraft" in the preamble has not been given patentable weight, since it has been held that if the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). Nordyke teaches a swage type fastener comprising:

- a. A first component (40) having a first aperture (36).
- b. A second component (42) having a second aperture (38) coaxially aligned with the first aperture (36).

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- c. An elongated member (32) having a head portion (44) positioned proximate the first component (40), the elongated member further having a shaft (46) extending through the first and second apertures, the shaft portion including at least one helical thread (50) and at least part of a frangible portion (52) that has been broken under an axial, tensile force.
 - d. A collar (10b) having an aperture (15 figure 1) into which the elongated member (32) is received, the collar being swaged onto the helical thread of the elongated member.
25. Regarding **claim 48**, Nordyke teaches an assembly of components for fastening a swage type fastener comprising:
- a. Inserting an elongated member (32) through a first hole (36) in a first component (40) and a second hole (38) in a second component (42) with a head (44) positioned proximate the first component.
 - b. Swaging a collar (10b) to a helical groove (50) of the elongated member (32) with the first and second components between the head and the collar and with the collar positioned between the second component and a removable portion (54) of the elongated member.
 - c. Removing the removable portion (54) of the elongated member (32) by applying an axial tensile force to the removable portion to break a connection (52) between the removable portion and the remainder of the elongated member the remainder including at least part of the frangible portion (52).

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26. Regarding **claim 49**, Nordyke teaches removing the removable portion after swaging the collar.

27. Regarding **claim 50**, Nordyke teaches inserting the elongated member (32) through the first hole (36) including inserting the member so that a first portion (46) of the elongated member aligned with the and received by the first hole has a lesser diameter than the first hole and that a second portion (48) of the elongated member aligned with and received by a second hole (38) has a lesser diameter than the second hole (**figure 3**).

28. Regarding **claim 53**, Nordyke teaches that the elongated member is elongated along an axis and removing the removable portion of the elongated member includes applying a force to the removable portion generally aligned with the axis (**col. 9, lines 63-67**).

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. Claims **6, 13, 33, 39, 45, 46, and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nordyke in view of **Sadri et al (US Patent No. 6,325,582)**.

28. Regarding **claim 6 and 52**, Nordyke teaches the structure above and inserting the elongated member (32) through a first hole (36) of a first component (40) and

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through a second hole (38) of a second component (42). Nordyke does not teach that the first and second components are composite aircraft components. Sadri teaches a swage type fastener of similar structure that can be used in aircraft applications with workpieces of lightweight metal or of a lightweight plastic, composite material. It would have been obvious to one of ordinary skill in the art at the time of invention to use a swage type fastener as in Nordyke to fasten composite aircraft components as in Sadri since it has been disclosed that this type of fastener is readily capable of fastening aircraft components.

29. Regarding **claim 13, 33 and 39**, Nordyke teaches the structure above but does not teach passing the collar over the groove without rotating the collar or the elongated member prior to swaging the collar. Sadri teaches a swage type fastener with a collar (14) which is passed over the circumferential grooves (34) onto the elongated member without rotating the collar or the elongated member. It would have been obvious to one of ordinary skill in the art at the time of invention to use the collar placement method of Sadri with the fastening method of Nordyke to remove the step of rotating the collar onto the threaded portion of the elongated member before swaging the collar.

30. Regarding **claim 45 and 46**, Nordyke teaches the structure above but does not teach that the first and/or second components are of a composite composition or that they are aircraft components. Sadri teaches a swage type fastener of similar structure that can be used in aircraft applications with workpieces of lightweight metal or of a lightweight plastic, composite material (**col. 1, lines 39-48**). It would have been obvious to one of ordinary skill in the art at the time of invention to use a swage type fastener as

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in Nordyke to fasten composite aircraft components as in Sadri since it has been disclosed that this type of fastener is readily capable of fastening aircraft components. It has been interpreted by the examiner that wing panels are merely aircraft components.

31. Claims **4, 14-17, 18-23, 25, 28, 47 and 51** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nordyke in view of **Reynolds (US Patent No. 3,464,472)**.

32. Regarding **claim 4, 28, 47 and 51**, Nordyke teaches the structure above but does not teach applying a liquid sealant to the elongated member before swaging the collar and swaging the collar without removing the liquid. Reynolds teaches a swage type fastener of similar structure to be inserted through openings such that the exterior threaded portion becomes coated with a layer of sealant which is usually the consistency of paste and then swaging a collar without removing the sealant (**col. 2, line 61-col. 3, line 10, and col. 3, lines 49-52**). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the sealant use method of Reynolds to the swage fastener system of Nordyke in order to apply a sealant to the fastener to provide a tighter seal of the joints.

33. Regarding **claim 14-16**, Nordyke teaches a swage type fastener installation method comprising:

- a. Inserting an elongated pin (**32**) through a first hole (**36**) in a first component (**40**) and a second hole (**38**) in a second component (**42**) with a head (**44**) of the elongated member positioned against the first component, the first hole having a diameter greater than the first portion (**46**) of the pin, the second hole having a

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diameter greater than the second portion (48) of the pin received in the second hole.

b. Swaging a collar (10b) to a helical groove (50) of the elongated pin (32) with the collar positioned against the second component (42) and with the collar between the second component and the removable portion (54).

c. Breaking a connection (52) located between the third portion (54) of the elongated pin and the second portion (48) of the elongated pin.

d. Removing the third portion

Nordyke does not teach the step of applying a fluid to the elongated pin. Reynolds teaches a swage type fastener of similar structure to be inserted through openings such that the exterior threaded portion becomes coated with a layer of sealant which is usually the consistency of paste and then swaging a collar without removing the sealant (col. 2, line 61-col. 3, line 10, and col. 3, lines 49-52). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the sealant use method of Reynolds to the swage fastener system of Nordyke in order to apply a sealant to the fastener to provide a tighter seal of the joints.

34. Regarding **claim 17**, Nordyke teaches a tool (58) having a first portion (60) positioned to engage the third portion (54) of the elongated pin and a second portion (68) positioned to contact the collar (10b) and wherein one of the two portions is movable axially relative the other (col. 9, lines 40-49).

29. Regarding **claim 19**, Nordyke teaches that the elongated member is elongated along an axis and removing the removable portion of the elongated member includes

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applying a force to the removable portion generally aligned with the axis (**col. 9, lines 63-67**).

35. Regarding **claim 20**, Nordyke teaches swaging the collar by applying an axial force and a radially inwardly directed force to the collar without applying torque to the collar (**col. 9, lines 40-67**).

36. Claims **21-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nordyke in view of Sadri and further in view of Reynolds.

37. Regarding **claim 21**, Nordyke teaches a swage type fastener installation method comprising:

- a. Inserting an elongated pin (**32**) through a first hole (**36**) in a first component (**40**) and a second hole (**38**) in a second component (**42**) with a head (**44**) of the elongated member positioned against the first component, the first hole having a diameter greater than the first portion (**46**) of the pin, the second hole having a diameter greater than the second portion (**48**) of the pin received in the second hole.
- b. Engaging a swaging tool (**58**) with a third portion (**54**) of the elongated pin with the second portion (**48**) of the elongated pin positioned between the first and third portions of the elongated pin.
- c. Swaging a collar (**10b**) to a helical groove (**50**) of the elongated pin (**32**) with the swaging tool (**58**) so the collar is positioned against the second component (**42**) with the helical groove (**50**) positioned between the second component and the third portion of the elongated pin.

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- d. Breaking a connection (52) located between the third portion (54) of the elongated pin and the second portion (48) of the elongated pin by applying an axial tension of the third portion while swaging the collar (col. 9, lines 63-67).
- e. Removing the third portion.

Nordyke does not teach that the first and second components are composite aircraft components or that a flowable sealant is applied to the elongated pin. Sadri teaches a swage type fastener of similar structure that can be used in aircraft applications with workpieces of lightweight metal or of a lightweight plastic, composite material. It would have been obvious to one of ordinary skill in the art at the time of invention to use a swage type fastener as in Nordyke to fasten composite aircraft components as in Sadri since it has been disclosed that this type of fastener is readily capable of fastening aircraft components. Reynolds teaches a swage type fastener of similar structure to be inserted through openings such that the exterior threaded portion becomes coated with a layer of sealant which is usually the consistency of paste and then swaging a collar without removing the sealant (col. 2, line 61-col. 3, line 10, and col. 3, lines 49-52). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the sealant use method of Reynolds to the swage fastener system of Nordyke in order to apply a sealant to the fastener to provide a tighter seal of the joints.

38. Regarding **claim 22**, Nordyke teaches swaging the collar and removing the removable portion wherein a tool (58) having a first portion (60) positioned to engage the third portion (54) of the elongated pin and a second portion (68) positioned to

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contact the collar (**10b**) and wherein one of the two portions is movable axially relative the other (**col. 9, lines 40-49**).

39. Regarding **claim 23**, Nordyke teaches the structure above but does not teach the step of applying a sealant to the helical path and swaging the collar without removing the sealant. Reynolds teaches a inserting an elongated pin through openings such that the exterior threaded portion becomes coated with a layer of sealant which is usually the consistency of paste and then swaging a collar without removing the sealant (**col. 2, line 61-col. 3, line 10, and col. 3, lines 49-52**). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the sealant use method of Reynolds to the swage fastener system of Nordyke in order to apply a sealant to the fastener to provide a tighter seal of the joints.

40. Regarding **claim 24**, Nordyke teaches the structure above but does not teach passing the collar over the groove without rotating the collar or the elongated member prior to swaging the collar. Sadri teaches a swage type fastener with a collar (**14**) which is passed over the circumferential grooves (**34**) onto the elongated member without rotating the collar or the elongated member. It would have been obvious to one of ordinary skill in the art at the time of invention to use the collar placement method of Sadri with the fastening method of Nordyke to remove the step of rotating the collar onto the threaded portion of the elongated member before swaging the collar.

41. Regarding **claim 25**, Nordyke teaches swaging the collar by applying an axial force and a radially inwardly directed force to the collar without applying torque to the collar (**col. 9, lines 40-67**).

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42. Claim **18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nordyke/Reynolds as applied to claim 14 above, and further in view of Sadri. Nordyke teaches the structure above and inserting the elongated member (**32**) through a first hole (**36**) of a first component (**40**) and through a second hole (**38**) of a second component (**42**). Nordyke does not teach that the first and second components are composite aircraft components. Sadri teaches a swage type fastener of similar structure that can be used in aircraft applications with workpieces of lightweight metal or of a lightweight plastic, composite material. It would have been obvious to one of ordinary skill in the art at the time of invention to use a swage type fastener as in Nordyke to fasten composite aircraft components as in Sadri since it has been disclosed that this type of fastener is readily capable of fastening aircraft components.

43. Claim **8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nordyke in view of **Volkman et al (US Patent No. 4,326,825)**. Nordyke teaches the structure of claim 1 above but does not teach inserting the elongated member to have an interference fit with the holes of the components. Volkman teaches a swage type fastener which is preferably in interference fit with the holes through which it is inserted (**col. 2, lines 28-34**).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Koehler whose telephone number is (571) 272-3560. The examiner can normally be reached on Mon.-Fri. 7:30A-4:00P.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CMK


MARC JIMENEZ
PRIMARY EXAMINER
10/24/05